



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/811,742    03/06/97    ZHANG

H    0756-1641

022204  
NIXON PEABODY, LLP  
8180 GREENSBORO DRIVE  
SUITE 800  
MCLEAN VA 22102

MMC1/0405

EXAMINER

HAWRANEK, S

ART UNIT

PAPER NUMBER

2823

DATE MAILED:

04/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Advisory Action**

Application No.

08/811,742

Examiner

Scott J Hawranek

Applicant(s)

ZHANG ET AL.

Art Unit

2823

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 21 March 2001 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check only a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
b) ☐ In view of the early submission of the proposed reply (within two months as set forth in MPEP § 706.07 (f)), the period for reply expires on the mailing date of this Advisory Action, OR continues to run from the mailing date of the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37CFR 1.191(d)), to avoid dismissal of the appeal.  
2. ☒ The proposed amendment(s) will be entered upon the timely submission of a Notice of Appeal and Appeal Brief with requisite fees.  
3. ☐ The proposed amendment(s) will not be entered because:  
(a) ☐ they raise new issues that would require further consideration and/or search. (see NOTE below);  
(b) ☐ they raise the issue of new matter. (see Note below);  
(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

4. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
5. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
6. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.  
7. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
8. ☒ For purposes of Appeal, the status of the claim(s) is as follows (see attached written explanation, if any):  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 5,12,16,19,26-48 and 67-75 for reasons of record paper 35.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.  
9. ☐ The proposed drawing correction filed on \_\_\_\_\_ a) ☐ has b) ☐ has not been approved by the Examiner.  
10. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
11. ☒ Other: See Detailed Action for arguments

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's amendments filed 3/27/01 are persuasive to overcome the objections of record.
2. Applicant's arguments filed 3/27/01 have been fully considered but they are not persuasive.

Applicant asserts none of the references teach or suggest the critical nature of the claimed range. Further, asserting the specification of the instant application, "[P]oints out that the inventors have performed experiments and studies (page 3, lines 23-25) concerning the method of forming a silicon semiconductor film and through those experiments it was unexpectedly observed (page 5, line 5) that there may be a catalytic effect for adding a specific concentration of metal such that the amorphous silicon may be crystallized at a lower temperature and within a shorter period of time (page 5, lines 14-23).... The specification describes this [ $1 \times 10^5$  atoms/cm<sup>3</sup>] lower limit as being critical (page 7, lines 22-28)." See Amendment at 2-3. In contrast to Applicant's assertions there is insufficient objective evidence to in order to establish critically or unexpected results in accordance with MPEP 716.

In addition, the claims are not commensurate in scope with the asserted results. First, the independent claims recite a metal concentration in a first region of less than  $1 \times 10^{19}$  atoms/cm<sup>3</sup>. Clearly, the asserted objective evidence does not demonstrate unexpected results or critically of a concentration range that covers nineteen orders of magnitude. Second, the asserted evidence uses nickel as metal catalyst, therefore, the claims are not commensurate in scope because they claim a metal catalyst. Third, the asserted evidence discloses an amorphous silicon layer, while

Art Unit: 2823

the claims disclose a semiconductor film. Finally, whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support." See In re Clemens, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980).

Finally, it appears Applicant has merely recognized a workable range (E15-E19 atoms/cm<sup>3</sup>) through routine experimentation and observed an inherent characteristic of the process made obvious by the rejection of record. It appears, that one of ordinary skill in the art at the time of the invention, would have recognized that the addition of an excess metal concentration, a high point, would cause a form of silicide or metallization in a semiconductor film. In addition, there would clearly be a lower point at which the catalyst would become ineffective at promoting crystallization.

For all the foregoing reasons the asserted evidence is insufficient to overcome the prima facie case of obviousness.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott J. Hawranek whose telephone number is (703) 305-0070. The examiner can normally be reached on Monday thru Friday from 8:30 to 6:00 P.M. .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy, can be reached on (703) 308-4918. The fax phone number for this Group is (703) 308-7722.

Application/Control Number: 08/811,742

Page 4

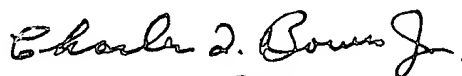
Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1778.

Scott J. Hawranek

Art Unit: 2823

April 5, 2001



Charles Bowers  
Supervisory Patent Examiner  
Technology Center 2800